

CLAIMS

What is claimed is:

1. A method for utilizing a column function for a relational database in a structure query language (SQL) environment, the column function capable of performing an operation on an indeterminate number of entries, the relational database utilizing data including a plurality of entries capable of being organized into at least one column and at least one row, the method comprising the steps of:

- (a) allowing a user to specify the at least one row as an argument for a generalized scalar function;
- (b) simulating a column environment for the at least one row using the generalized scalar function to allow the at least one row to be provided to the column function as though the at least one row was a column; and
- (c) performing the column function on the at least one row to provide at least one output.

2. The method of claim 1 wherein the simulating step (b) further includes the steps of:

- (b1) fetching a row of the at least one row; and
- (b2) utilizing the generalized scalar function to provide the row to the column function as though the row was a column.

3. The method of claim 1 wherein the column function performing step (c)

2 further includes the step of:

3 (c1) performing the column function on the row to provide an output; and wherein
4 the method further includes the step of

5 (d) repeating steps (b1), (b2) and (c1) for each remaining row of the at least one
6 row.

1 4. The method of claim 1 wherein the column function provides a maximum of
2 each of the at least one row.

1 5. The method of claim 1 wherein the column function provides a minimum of
2 each of the at least one row.

1 6. The method of claim 1 wherein the column function performing step (c)
2 further includes the step of:

3 (c1) performing an initialization phase in response to a first entry of each of the at
4 least one row;

5 (c2) performing an evaluation phase on each entry of the at least one row; and

6 (c3) performing a finalization phase after evaluation of a last entry of the at least
7 one row.

1 7. The method of claim 1 wherein the generalized scalar function in
2 combination with the column function allow the operation of the column function to be
3 performed for the indeterminate number of entries in the at least one row

1 8. A computer-readable medium containing a program for utilizing a column
2 function for a relational database in a structure query language (SQL) environment, the
3 column function capable of performing an operation on an indeterminate number of entries,
4 the relational database utilizing data including a plurality of entries capable of being
5 organized into at least one column and at least one row, the program including instructions
6 for:

- 7 (a) allowing a user to specify the at least one row as an argument for a
8 generalized scalar function;
9 (b) simulating a column environment for the at least one row using the
10 generalized scalar function to allow the at least one row to be provided to the column
11 function as though the at least one row was a column; and
12 (c) performing the column function on the at least one row to provide at least one
13 output.

1 9. The computer-readable medium of claim 8 wherein the simulating
2 instructions (b) further includes instructions for:

- 3 (b1) fetching a row of the at least one row; and
4 (b2) utilizing the generalized scalar function to provide the row to the column
5 function as though the row was a column.

1 10. The computer-readable medium of claim 8 wherein the column function
2 performing instructions (c) further includes instructions for:

- 3 (c1) performing the column function on the row to provide an output; and wherein

the program further includes instructions for

(d) repeating instructions (b1), (b2) and (c1) for each remaining row of the at least one row.

11. The computer-readable medium of claim 8 wherein the column function provides a maximum of each of the at least one row.

12. The computer-readable medium of claim 8 wherein the column function provides a minimum of each of the at least one row.

13. The computer-readable medium of claim 8 wherein the column function performing instruction (c) further includes instructions for:

(c1) performing an initialization phase in response to a first entry of each of the at least one row;

(c2) performing an evaluation phase on each entry of the at least one row; and

(c3) performing a finalization phase after evaluation of a last entry of the at least one row.

14. The computer readable medium of claim 8 wherein the generalized scalar function in combination with the column function allow the operation of the column function to be performed for the indeterminate number of entries in the at least one row

15. A system for utilizing a column function for a relational database in a

2 structure query language (SQL) environment, the relational database utilizing data including
3 a plurality of entries capable of being organized into at least one column and at least one
4 row, the system comprising:

5 a column function capable of performing an operation on an indeterminate number of
6 entries;

7 a generalized scalar function for simulating a column environment for the at least one
8 row using the generalized scalar function to allow the at least one row to be provided to the
9 column function as though the at least one row was a column such that the column function
10 can perform an operation the at least one row to provide at least one output;

11 an interface for allowing a user to specify the at least one row as an argument
12 for the generalized scalar function.

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each of the at least one row.

20. The system of claim 15 wherein the column function performs the operation by performing an initialization phase in response to a first entry of each of the at least one row, performing an evaluation phase on each entry of the at least one row and performing a finalization phase after evaluation of a last entry of the at least one row.

21. The system of claim 15 wherein the generalized scalar function in combination with the column function allow the operation of the column function to be performed for the indeterminate number of entries in the at least one row